AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-77. Canceled.

78. (New) A method comprising steps for adaptively scheduling robot tasks in a time interval, for a robot coupled to a stainer, wherein the robot treats slides coupled to the stainer according to a treatment protocol with reagents in reagent bottles or fluid containers coupled to the stainer, the steps comprising:

creating a robot task list comprising all robot tasks that are ready for execution within the time interval;

calculating a robot task priority for each robot task in the robot task list;

sorting the robot task list in descending order of robot task priority; and

adding robot tasks starting from the top of the sorted robot task list to a robot task execution queue until robot the robot is fully utilized in the time interval or the robot task list is exhausted.

79. (New) The method of claim 78, wherein the steps are performed autonomously by the stainer.

80. (New) The method of claim 78, wherein the steps are repeatedly executed for successive time intervals starting at the time the stainer is first powered on.

81. (New) The method of claim 78, wherein the steps are executed concurrent with the performance of other stainer and robot tasks.

82. (New) The method of claim 78, wherein creating the robot task list further comprises adding robot tasks that have been generated as a result of contemporaneous events to the robot task list.

83. (New) The method of claim 82, wherein the contemporaneous events comprise one or more of:

introducing new slides into the stainer;

adding or removing reagent bottles or fluid containers; and

altering a priority assigned to one or more slide racks on which the slides are mounted.

84. (New) The method of claim 78, wherein task types in the list of robot tasks further comprise one or more of:

moving the robot to a position within the stainer;

mixing reagents for a slide;

applying a reagent to a slide from the reagent bottle or the fluid container;

air blowing a slide; and

tipping a slide to a horizontal or a vertical position; and

capturing an image of a slide.

85. (New) The method of claim 84, wherein applying a reagent to a slide from the reagent bottle or the fluid container further comprises one or more of:

applying a buffer to a slide; and

applying deionized water to a slide.

86. (New) The method of claim 78, wherein calculating a robot task priority for each robot task in the robot task list further comprises calculating a score for each robot task based on a mathematical function of sub-scores assigned to individual task parameters.

87. (New) The method of claim 86, wherein the individual task parameters further comprise the earliest start time for a task, the latest start time for a task, the time duration needed to execute the task, the location of the robot, the priority of the rack on which a slide associated with the task is mounted, and a predetermined relative priority for the robot task type.

88. (New) The method of claim 87, wherein the predetermined relative priority for a robot task may be one of high or low.

89. (New) The method of claim 78, wherein certain robot tasks may be designated highest priority and added directly to the top of the robot's execution queue.

90. (New) The method of claim 78, wherein the robot tasks ready for execution comprise those robot tasks where no prerequisites for commencing robot task execution remain to be completed.

91. (New) The method of claim 78, wherein creating a robot task list comprising all robot tasks that are ready for execution within the time interval further comprises:

determining slides requiring a new treatment protocol step within the time interval;

determining if robot tasks associated with the new treatment protocol step for each slide may be performed within the time interval; and

substituting a task of applying buffer to a slide for each slide for which robot tasks associated with the new treatment protocol step cannot be performed within the time interval.